

## Patent claims

1. Method for transmission of broadcasting information (m\_inf) routed to a central communication unit (ZBG) to at least one subscriber connection (TLN11...nk) assigned to a decentralized communication unit (DBG1...z) via at least one communication network (EN),
- 5 in which, for transmission of information for individual subscriber connections, starting from the central communication unit (ZBG) at least one virtual connection (vid 11...nk) specific to an individual subscriber is set up in each case via the communication network (EN), via the at least one decentralized communication unit (DBG) to/via each subscriber connection (TLN11...nk),
- 10 characterized in that
- at least one further virtual connection (vid m) is set up between the central unit and the at least one decentralized communication unit (ZBG, DBG1...z) in each case,
  - 15 - in the central communication unit (ZBG) the broadcasting information (m\_inf) is checked to see whether at least a part of the broadcasting information (m\_inf) is to be transmitted to a number of subscriber connections (TLN11...nk) of the at least one decentralized communication unit (DBG1...n),
  - 20 - the at least one part of the broadcasting information (m\_inf) for a number of subscriber connections (TLN11...nk) is transmitted over the at least one further virtual connection (m\_inf) to the at least one decentralized communication unit (DBG1...z), is
  - 25 duplicated there and is forwarded in each case to/via the number of subscriber connections (TLN11...nk).
2. Method according to Claim 1,
- characterized in that
- 30 the at least one part of the broadcasting information (m\_inf) duplicated in the at least one decentralized communication unit (DBG1...z) is inserted into the corresponding virtual connections

(vid 11...nk) specific to a subscriber routed via the decentralized communication unit (DBG1...z) and is forwarded via this to/via the relevant subscriber connections (TLN11...nk).

3. Method according to Claim 2,

5 characterized in that

- in the central communication unit (ZBG) on detection of broadcasting information (m\_inf) to be transmitted to a number of subscriber connections (TLN11...nk) of the at least one decentralized communication unit (DBG1...n) the at least one part of the

10 broadcasting information to be transmitted (m\_inf) is assigned

addressing information identifying the number of subscriber connections and the at least one part of the broadcasting information (m\_inf) is transmitted together with the assigned addressing information via the at least one further virtual

15 connection (vid m) to the at least one decentralized communication unit (DBG1...z) and that the at least one part of the broadcasting information (m\_inf) transmitted is duplicated as a function of the assigned addressing information and is inserted into the virtual connection (vid 11...nk) specific to individual subscribers.

20 4. Method in accordance with one of the previous claims,

characterized in that,

distribution information (vi) is stored in the central communication unit (ZBG), which indicates the at least one subscriber connection (TLN11...nk) of the at least one decentralized communication unit

25 (DBG1...z) to which the relevant incoming broadcasting information

(m\_inf) is to be transmitted, with the broadcasting information

(m\_inf) routed to the central communication unit (ZBG) being

comprehensively checked with the aid of the stored distribution

information (vi) as to whether at least a part is to be transmitted

to a number of subscriber connections (TLN11...nk) of the at least one decentralized communication unit (DBG1...z).

5. Method in accordance with Claim 3 or 4, characterized in that

5 information (snoop-inf) is stored in the at least one decentralized communication unit (DBG1...z) through which the addressing information assigned to the transmitted broadcasting information (m\_inf) in each case can be assigned to the at least one subscriber connection (TLN11...nk) and/or to the at least one virtual connection  
10 (vid 11...nk) specific to the subscriber which is routed via the connection.

6. Method in accordance with one of the previous claims, characterized in that,

- different transmission protocols are implemented by the virtual  
15 connections (vid\_11...nk) which are specific to a subscriber connection routed via the subscriber connections (TLN11...nk) of the at least one decentralized communication unit (DBG1...z),  
- for each transmission protocol implemented via the at least one decentralized communication unit (DBG1...z) at least one further  
20 virtual connection is set up for the individual transmission protocol between the central and the at least one decentralized communication unit (ZBG, DBG1...z).

7. Method according to Claim 6, characterized in that

25 - the broadcasting information (m\_inf) routed to the central communication unit (ZBG) is checked as to whether at least a part of the broadcasting information (m\_inf) is to be transmitted to a number of subscriber connections (TLN11...nk) implementing the same transmission protocol of the at least one decentralized  
30 communication unit (DBG1...z),

if it is established that at least a part of the broadcasting information (m\_inf) is to be transferred to a number of subscriber connections (TLN11...nk) implementing the same protocol, the at least one part of the broadcasting information (m\_inf) is transmitted from the central communication unit (ZBG) via the at least one further individual virtual connection (vid\_m) for the transmission protocol to the at least one decentralized communication unit (DBG1...z), duplicated there and forwarded to the number of subscriber connections (TLN1..nk) implementing the same transmission protocol.

8. Method in accordance with Claim 6 or 7, characterized in that the transmission protocol implemented by the subscriber connections (TLN11...nk) of the at least one decentralized communication unit (DBG1...z) in each case is additionally indicated by the distribution information (vi) stored in the central communication unit (ZBG).

9. Method in accordance with one of the previous claims, characterized in that, a subscriber-individual selection of at least a part of the broadcasting information (m\_inf) routed to the central communication unit is made in the central communication unit (ZBG), with the distribution information (vi) stored in the central communication unit (ZBG) being updated as a function of the relevant subscriber-individual selection.

10. Method according to Claim 9, characterized in that the subscriber-individual selection is made as part of the IGMP protocol terminated in the central communication unit (ZBG).

11. Method according to Claim 10,  
characterized in that

the IGMP-protocol is set up for each subscriber connection  
(TLN11...nk) via one of the at least one virtual connections

5 (vid\_11...nk) which are specific to a subscriber connection between a  
subscriber assigned to this connection and the central communication  
unit (ZBG).

12. Method in accordance with Claim 10 or 11,  
characterized in that

- 10 - within the framework of the IGMP protocol, selection information  
transmitted via the at least one decentralized communication unit  
(DBG1...z) is read and evaluated in the decentralized  
communication unit (DBG1...z), and  
- with the aid of the evaluation result the information (snoop-inf)  
15 stored in the decentralized communication unit (DBG) is updated.

13. Method in accordance with one of the previous claims,  
characterized in that,

the at least one communication network (EN) is embodied as a frame-  
oriented or a packet-oriented communication network in accordance  
20 with IEEE Standard 802.3.

14. Method according to Claim 13,  
characterized in that

the virtual connections (vid\_11...nk, vid\_m) routed via the  
communication network (EN) and the Ethernet data frames transmitted  
25 via the communication network (EN) are embodied in accordance with  
IEEE Standards 802.1Q and 802.1D.

15. Method in accordance with one of the previous claims,  
characterized in that,

the broadcasting information (m\_inf) routed to the central

30 communication unit (ZBG) is embodied in accordance with the Internet  
Protocol or the TCP/IP protocol.

16. Method in accordance with Claim 14 or 15,  
characterized in that  
in the central communication unit the at least one part of the  
broadcasting information (m\_inf) routed to it is inserted into at  
least one Ethernet data frame having routing and payload  
information, with the addressing information assigned in each case  
representing a component of the routing information of the Ethernet  
data frame.
17. Method according to Claim 16,  
characterized in that  
the assigned addressing information represents an Ethernet multicast  
MAC address.
18. Method in accordance with one of the previous claims,  
characterized in that,  
the broadcasting information (m\_inf) routed to the central  
communication unit (ZBG) is transmitted via a higher-level  
communication network (OKN) connected to the central communication  
unit (ZBG).
19. Communication system for transmission of broadcasting  
information (m\_inf) routed to a central communication unit (ZBG) to  
at least one subscriber connection (TLN11...nk) assigned to a  
decentralized communication unit (DBG1...z) via at least one  
communication network (EN),  
in which, for transmission of information for individual subscriber  
connections, starting from the central communication unit (ZBG) at  
least one virtual connection (vid 11...nk) specific to a subscriber  
is set up in each case via the communication network (EN), via the  
at least one decentralized communication unit (DBG...z) to/via each  
subscriber connection unit (TLN11...nk).
30. characterized in that
- at least one further virtual connection (vid m) is set up between  
the central and the at least one decentralized communication unit

(ZBG, DBG1...z) in each case,

- that control means (STGZ) are provided in the central communication unit (ZBG), through which
  - the broadcasting information (m\_inf) routed to the central communication unit (ZBG) is checked for whether at least one part of the broadcasting information (m\_inf) is to be transmitted to a number of subscriber connections (TLN11...nk) of the at least one decentralized communication unit (DBG1...n),
  - the at least one part of the broadcasting information (m\_inf) for a number of subscriber connections (TLN11...nk) is transmitted via the at least one further virtual connection (m\_inf) to the at least one decentralized communication unit (DBG1...z),
- in the at least one decentralized communication unit (DBG1...n) control means (STGD) are provided through which the at least one part of the broadcasting information (m\_inf) transmitted via the at least one further virtual connection (vid m) is duplicated and forwarded in each case to/via the number of subscriber connections (TLN11...nk).

20. Communication system in accordance with Claim 19, characterized in that, the control means (STGD) arranged in the at least one decentralized communication unit (DBG1...z) is embodied such that the at least one part of the broadcasting information (m\_inf) duplicated in the at least one decentralized communication unit is inserted into the corresponding virtual connection (vid\_11...nk) specific to the subscriber routed via the decentralized communication unit (DBG1...z) and is forwarded via the latter to/via the relevant subscriber connections (TLN11...nk).

21. Communication system in accordance with Claim 20, characterized in that,

the control means (STGZ) arranged in the central communication unit (ZBG) is embodied such that, if broadcasting information (m\_inf) to be transmitted to a number of subscriber connections (TLN11...nk) of the at least one decentralized communication unit (DBG1...n) is detected, the at least one part of the broadcasting information (inf) to be transmitted is assigned addressing information identifying the number of subscriber connections (TLN11...nk) and the at least one part of the broadcasting information (m\_inf) is transmitted, along with the assigned addressing information, via the at least one further virtual connection (vid m) to the at least one decentralized communication unit (DBG1...z), and that the control means (STGD) arranged in the at least one decentralized communication unit (DBG1...z) is embodied such that the transmission of the at least one part of the broadcasting information (m\_inf) is duplicated as a function of the assigned addressing information in each case and inserted into the virtual connection (vid\_11...nk) specific to the subscriber.

22. Communication system in accordance with one of the Claims 19 to 21,

characterized in that

- the subscriber connections (TLN11...nk) of the at least one decentralized communication unit (DBG1...z) are embodied such that different transmission protocols are implemented by the virtual connections (vid\_11...nk) specific to a subscriber connection routed via the subscriber connections (TLN11...nk),
- for each transmission protocol implemented via the at least one decentralized communication unit (DBG1...z), at least one further virtual connection which is specific to a transmission protocol

is set up between the central unit and the at least one decentralized communication unit (ZBG, DBG1...z) in each case.

23. Communication system in accordance with Claim 22, characterized in that,

- 5 - the control means (STGZ) arranged in the central communication unit (ZBG) are embodied such that,
  - the broadcasting information (m\_inf) routed to the central communication unit (ZBG) is thoroughly checked as to whether at least a part of the broadcasting information (m\_inf) is to be transmitted to a number of subscriber connections (TLN11...nk) of the at least one decentralized communication unit (DBG1...z) which each implement the same transmission protocol, and
  - the at least one part of the broadcasting information (m\_inf) for a number of subscriber connections (TLN11...nk) implementing the same transmission protocol is transmitted via the at least one further virtual connection (vid m) specific to the transmission protocol to the at least one decentralized communication unit (DBG1...z), and
- the control means (STGD) arranged in the at least one decentralized communication unit (DBG1...z) are embodied such that the transmission of the at least one part of the broadcasting information (m\_inf) is duplicated there and forwarded to the plurality of subscriber connections (TLN11...nk) implementing the same transmission protocol.

25 24. Communication device (KE) which can be arranged in a communication network (ACCESS), characterized by a communication system in accordance with one of the Claims 19 or 23 provided in the communication device (KE).